CHAPTER XXI

THE OCCURRENCES IN OPEN-HEARTH FURNACES AND TIT Kill JUDGMENT

THE great amounts of heat which are at disposal in the open-hearth furnace allow of a rapid transference of heat to a charge introduced., and if this be in the solid state it soon attains its melting point, and passes over into the molten state. With the first molten mass making its appearance, the actions of the individual constituents of the bath on one another begins, and of these carbon elimination possesses the greatest signification for the result of the process. It begins early, and after complete fusion of the entire charge, takes the course described on p. 1(56. The regularity of the boil of the bath is an indication that the metal, as well as the slag, has the proper composition ; it should have attained its highest point with normal charges about half an hour after melting down, and continue for about a further half-hour. Stoppage of the boil or its diminution is an indication that the metal and slag are in a condition of equilibrium, that is to say, approximate to this condition, and it then must be tapped. As to this, in the first place it must be decided whether the bath possesses the right temperature.

JUDGING THE TEMPERATURE OF THE METAL.

Testing the metal in regard to its degree of heat takes place by a purely empirical method, as corresponding apparatus is not at disposal, and would scarcely be practicable. The method of testing is applicable to all molten substance, and answers equally well for steel as for tin, or even fat. It is based on the circumstance that a molten substance brought into colder surroundings remains fluid the longer, the higher it is heated above its fusion point. In order to teat the temperature of the